

**REMARKS**

Claims 1-2, 4-6, 9-11, 24, 27, and 29-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Collins III et al., Publication Number 2002/0187571 (hereinafter "Collins"). Applicants respectfully traverse the rejection.

**Claim 1 and its dependent claims****A. The Examiner states that the elements of claim 1 are inherent in Collins**

Claim 1 recites "an underfill between a first surface of the light emitting diode and a first surface of the submount, wherein the underfill has characteristics to reduce contamination of the light emitting diode by the phosphor material." In rejecting claim 1, the Examiner states:

Collins et al. teach . . . an underfill material (66, Fig. 4B) between a first surface of the light emitting diode and a first surface of the submount. Collins et al. do not expressly teach that the underfill has characteristics to reduce contamination of the light emitting diode by the phosphor material. However, it is inherent in Collins's device because the underfill of Collins comprises a same material with the present invention. Therefore, the underfill of Collins also has characteristics to reduce contamination of the light emitting diode by the phosphor material.

Layer 66 is described in paragraph [0028] as "a second insulating layer 66 . . . deposited in the gaps between anode contacts and cathode contacts and on parts of contact layer 62." Later in the same paragraph, SiO<sub>x</sub> is recited as an example of a material suitable for insulating layer 66. Since claim 10 recites that claim 1's underfill may include a filler of silicon dioxide, the Examiner argues that layer 66 inherently includes the structure of claim 1.

**B. The doctrine of inherency**

The Examiner's rejection is contrary to well-established principles of inherency. The test for inherency is set forth in MPEP section 2112, quoting *In re Robertson*: "To establish

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inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." Emphasis added, citations omitted.

**C. Claim 1 is not inherently taught by Collins**

Collins does not expressly teach an underfill that "has characteristics to reduce contamination of the light emitting diode by the phosphor material," as recited in claim 1, thus Collins only anticipates this portion of claim 1 if the quoted portion is inherent in Collins.

In arguing the quoted portion is inherent in Collins, the Examiner's reasons as follows:

1. Collins teaches an insulating layer 66 that may be  $\text{SiO}_x$ .
2. Claim 1 teaches an underfill that "has characteristics to reduce contamination of the light emitting diode by the phosphor material."
3. Claim 10 teaches that the underfill may be a filler that may comprise silicon dioxide.
4. Since Collins' insulating layer and claim 10's filler may be the same material, Collins' insulating layer inherently "has characteristics to reduce contamination of the light emitting diode by the phosphor material" as recited in claim 1.

According to the above-quoted definition of inherency, Collins'  $\text{SiO}_x$  insulating layer inherently "has characteristics to reduce contamination of the light emitting diode by the phosphor material" if those characteristics are "necessarily present in the thing described in the reference," that is, the  $\text{SiO}_x$  insulating layer.

In the previous office action, Applicants noted several possible implementations of Collins where the SiO<sub>x</sub> insulating layer will not have "characteristics to reduce contamination of the light emitting diode by the phosphor material."

1. If the SiO<sub>x</sub> insulating layer contains other materials besides SiO<sub>x</sub> that encourage contamination, the SiO<sub>x</sub> insulating layer will not have "characteristics to reduce contamination of the light emitting diode by the phosphor material."

2. If the SiO<sub>x</sub> insulating layer is deposited with a thickness that is incapable of reducing contamination, the SiO<sub>x</sub> insulating layer will not have "characteristics to reduce contamination of the light emitting diode by the phosphor material."

3. If the SiO<sub>x</sub> insulating layer is deposited over an area of structure that cannot protect the device from contamination, the SiO<sub>x</sub> insulating layer will not have "characteristics to reduce contamination of the light emitting diode by the phosphor material."

Applicants have thus illustrated 3 implementations where a SiO<sub>x</sub> insulating layer will not have "characteristics to reduce contamination of the light emitting diode by the phosphor material." Accordingly, the characteristic "to reduce contamination of the light emitting diode by the phosphor material" does not necessarily result from a SiO<sub>x</sub> insulating layer. As such, Collins' SiO<sub>x</sub> insulating layer does not inherently include "characteristics to reduce contamination of the light emitting diode by the phosphor material." Since this claim recitation is not inherent in Collins, Collins does not anticipate claim 1.

**D. Applicants rebuttal to the office action's Response to Arguments section**

The Examiner quotes MPEP section 2112, which states it is acceptable to make a combined 102/103 rejection using the doctrine of inherency:

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the

examiner may make a rejection under both 35 U.S.C. 102 and 103, expressed as a 102/ 103 rejection. "There is nothing inconsistent in concurrent rejections for obviousness under 35 U.S.C. 103 and for anticipation under 35 U.S.C. 102." In re Best, 562 F.2d 1252, 1255 n.4, 195 USPQ 430, 433 n.4 (CCPA 1977). This same rationale should also apply to product, apparatus, and process claims claimed in terms of function, property or characteristic. Therefore, a 35 U.S.C. 102/ 103 rejection is appropriate for these types of claims as well as for composition claims.

Applicants are unsure why the Examiner considers this MPEP passage relevant to the above analysis. Applicants respectfully remind the Examiner, as has been stated in two previous office action responses, that Collins and the present application were, at the time the present invention was made, owned or subject to an obligation of assignment to Lumileds Lighting U.S. LLC. Under 35 U.S.C. 103(c), Collins cannot be used as a prior art reference in a 103(a) rejection. Accordingly, the Examiner cannot use the doctrine of obviousness provided in 35 U.S.C. 103(a) to provide the elements of claim 1 that are not taught by Collins. Thus, the Examiner CANNOT make the argument that it would have been obvious to *modify* Collins' SiO<sub>x</sub> insulating layer to have "characteristics to reduce contamination of the light emitting diode by the phosphor material" as recited in claim 1.

The Examiner also states "In response to applicant's argument that the references fail to show certain features of the applicant's invention, it is noted that the features upon which applicant relies (i.e., a silicon dioxide containing underfill that completely fills the space between the diode and the submount may reduce contamination) are not recited in the rejected claim(s)." Applicants note that the example quoted by the Examiner was used only to demonstrate that the claimed element "characteristics to reduce contamination of the light emitting diode by the phosphor material" is not inherent in Collins' teaching of a SiO<sub>x</sub> insulating layer. The above-quoted claim element IS part of claim 1 and is NOT inherently taught by Collins, thus Collins does not anticipate claim 1.

**E. Dependent claims rejected under 102**

Claims 2, 4-6, and 9-11 and 24 depend from claim 1 and are therefore allowable over Collins for at least the same reason as claim 1.

**F. Allowable claims**

Applicants thank the Examiner for indicating that claims 3, 7, 8, 12-15, 22, 23, 25, 26, and 28 are allowable if amended into independent form.

**Claim 27 and dependent claims**

Claim 27 is amended to include claim 33, which the Examiner indicated was allowable if rewritten in independent form. Claims 29-31 depend from claim 27 and are therefore also allowable. Applicants thank the Examiner for indicating claims 28, 32, and 33 are allowable.

**Claim 34 and dependent claims**

Applicants thank the Examiner for allowing claims 34-44.

**Conclusion**

In view of the above arguments, Applicants respectfully request allowance of claims all pending. Should the Examiner have any questions, the Examiner is invited to call the undersigned at (408) 382-0480.

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